



## How much do insect pests cost Prairie farmers?

CATEGORY [insects](#) | February 18, 2026

*Economic losses due to insect pests is estimated at over \$204 million in an 'average' year.*

Every year, insect pests cause substantial economic losses on the Prairies. Yet there is no estimate of the total economic cost from insect damage. A review was conducted to develop a new way of estimating insect pest costs based on provincial pest reports, and to provide recommendations on how to standardize pest reports in order to help prioritize research funding.

The researchers explain that there are gaps in estimating the economic costs of insect pests, and in determining which insect pests are the most damaging. They indicate that there are several reasons for these gaps:

- (1) thresholds (2) and surveys are lacking for key pests,
- (3) there is no repository of acreages impacted,
- (4) or record of the land area where a control action was taken along with costs,
- (5) or estimated efficiency of control actions,
- (6) or records of resulting values of the grain and quality losses.

To develop an economic impact estimate of the main crop pests, the researchers summarized pest status reports from 2015 to 2024, that are presented annually to the Western Committee on Crop

Pests, and are filed at the Western Forum on Pest Management website

<https://www.westernforum.org/WCCP%20Minutes.html>

Over the 10 years, four insects were seen as the most damaging: flea beetle, grasshoppers, cutworms and lygus bugs – listed in descending order. Other insect pests listed in descending order of importance were wireworms, pea aphids, wheat midge, pea leaf weevil, cabbage seedpod weevil, diamondback moth, bertha armyworm, root maggots, cereal aphids, alfalfa weevil, European corn borer, and wheat stem sawfly.

From these reports, the researchers developed an estimated total economic impact. While not perfect due to multiple factors, the researchers estimated the number of acres/hectares treated with an insecticidal seed or foliar treatment, the cost of insecticide treatment, yield loss, and value of crop loss. When combined, these provided an estimate of the total economic impact in an ‘average’ year. The estimated number of acres affected and treated was based on general descriptions presented in the reports by provincial government entomologists.

**Cost estimate calculations for each insect pest, based on an “average” year.**

<b>Insect Pest</b>	<b>Crop</b>	<b>Total Cost (economic impact)</b>
Flea beetles	Canola	\$160,267,707
Wireworms	All	\$11,794,632
Cutworms	All	\$11,136,000
Lygus bug	Canola	\$7,052,360
Lygus bug	Faba bean	\$2,995,632
Aphids	Peas	\$2,420,832
Grasshoppers	All	\$2,227,200
Wheat stem sawfly	Wheat	\$1,095,000
Lygus bug	Lentil	\$786,374
Cabbage seedpod weevil	Canola	\$705,236
Aphids	Lentil	\$613,397
Pea leaf weevil	Pea	\$556,459
Wheat midge	Wheat	\$546,200
Pea leaf weevil	Faba bean	\$304,632
Other	Various	\$1,053,000
<b>TOTAL</b>		<b>\$203,554,661</b>

Source: Srivastava et al. 2025

In addition to these insect pests chewing through Prairie farmers' pockets, other minor pests including cereal aphids, leafhoppers, root maggots, alfalfa weevil, cereal leaf beetle, and diamondback moth also cause economic loss conservatively estimated at \$1 million. Taken these additional pests into consideration, the annual economic impact is estimated to be over \$204 million in an 'average' year.

### **Challenges estimating economic impacts**

Accurate estimates would require multiple data inputs, many of which are not available. Yield loss estimates are missing for some key insect pests. Accurate acreage affected by pests is not known. Other variables that require further refinement and verification include how much land was sprayed to control the insect pest, how effective the spray intervention was, the opportunity cost of controlling the pest, and yield losses from the insect pest. Development of resistance to insecticides further complicates these calculations.

Conversely, in some cases, pests at low population levels can actually stimulate yield such as canola that branches out in response to defoliation. This value would need to be incorporated into the estimates.

A cost that is difficult to estimate is the environmental nontarget impact of controlling the insect pest. This could include the impact on natural enemies, pollinators, soil engineers, and detritivores.

A very large variable in estimating economic losses is the role that the environment plays in insect pest pressure and crop development. Climate projections suggest that some insect pest species may move further north. For example, a warming climate could increase conditions favourable for wheat midge infestations. Or grasshopper infestations could become more frequent or severe if hot, dry conditions develop more frequently.

High-resolution weather and ecological data is required to capture these environmental influences on pest impacts.

The researchers recommend that a centralized, high-resolution pest data repository be developed. Economic thresholds need to be updated or developed so that farmers can make effective pest control decisions. Advanced technologies such as "GIS, machine learning, and predictive modelling further enhance pest monitoring and risk forecasting."

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Vivek Srivastava, Tyler Wist, and Héctor Cárcamo. 2025. Prairie crop insect pests: how can we improve our economic impact estimate?. *Canadian Journal of Plant Science*. **105**: 1-12. OPEN ACCESS  
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Photo of dingy cutworm by John Gavloski